United States Department of the Interior
NATIONAL PARK SERVICE
COASTAL RESEARCH CENTER
COOPERATIVE PARK STUDIES UNIT
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Narragansett Bay Campus
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IN REPLY REFER TO:

30 October 1991

MEMORANDUM

To: Resource Management Specialist, Cape Cod National Seashore, MA
Park Scientist, Cape Cod National Seashore, MA
Field Representative, U.S. Forest Service, Durham, NH
Entomologist & Acting Director, APHIS, USDA, Otis ANGB, MA

From: Invertebrate Ecologist, National Park Service
Coastal Research Center, Univ. Rhode Island

Re: Sampling protocol for browntail moth, *Euproctis chrysorrhoea*, on Cape Cod

The sampling protocol presented below was developed from the discussion at last month's meeting between National Park Service and U.S. Forest Service personnel at Cape Cod, and from subsequent discussions with various experts. I view this as a tentative sampling scheme that will be revised based on the comments of interested parties, and the experience from the first round of samples. Please send me your comments and suggestions as soon as possible. We hope to have someone on site and ready to start field work sometime in late November.

TENTATIVE SAMPLING SCHEME

- Samples will be taken along transects (or strips) placed every 4 km from the tip of Cape Cod (near Herring Cove Beach) to the area of Coast Guard Beach; a total of 10 transects. The number of transects can be increased (to say, one every 2 km) to get better resolution in areas of special interest, or if sampling goes quickly enough to allow us to double the number of samples.

- Transects will be placed by drawing a line on a map or aerial photo along the center of the Cape (halfway between

time, even though different plant species predominate in different parts of the Cape.

Winter webs will be collected from each quadrat (5 from each plant species), or from a subsample of quadrats, depending on time constraints. The webs will be collected at random (e.g., the webs closest to each of 5 random points in the quadrat), and will be returned to the lab for dissection. The webs will be cut open in the lab (under a hood with protective clothing). The number of larvae per web, average larval lengths (or weights), and percent of larvae that are healthy (vs. parasitized) will be recorded. Techniques for handling *E. chrysorrea* will be developed (protective clothing, possibly handling of specimens in ethanol or other liquid).

Each transect will represent a sample at a given point along the Cape. The data from the quadrats can be analyzed to yield average cover by each plant species, average percent of plants infested, average density of infestation, average larval density in webs, average size of larvae, and average parasitism rate of larvae at each point along the Cape. The data can be analyzed with standard ANOVA techniques, and trends can be compared from year to year.

This sampling program will be applied to both NPS and privately-owned land on the Cape. Private lands where permission cannot be obtained for sampling will be excluded from the sample, and an alternate random quadrat will be selected. During the summer following the winter samples, plant damage data can be collected from the permanent quadrats and correlated with winter web densities. Also, pheromone trap data can be compared with web densities the previous and subsequent winters, and with plant damage data.

I would appreciate hearing your comments about this sampling program. I think it will solve the variability problems inherent in some of the early studies and will allow analysis of changes through time in the distribution of *E. chrysorrhoea* on Cape Cod. Please send me your suggestions or call me at (401) 792-4537. Thanks for your input.

Howard

Howard Ginsberg